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INTERMOUNTAIN FOREST AND RANGE EXPERIMENT STATION
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Forest Service

BLACK HILLS BEETLE CONDITIONS
DIXIE NATIONAL FOREST AND BRYCE CANYON NATIONAL PARK, UTAH

APPRAISAL AND RECONNAISSANCE SURVEY
September - October 1956

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INTRODUCTION

The epidemic of Black Hills beetle Dendroctonus ponderosae (Hopk.) on the Dixie National Forest and Bryce Canyon National Park has been subjected to control action each year since 1950. During this period the epidemic conditions on a considerable portion of the infested ponderosa pine stands have been reduced by the combined action of chemical treatment of infested trees and an excellent logging program within the more heavily infested units. Unfortunately as areas have been brought under control new outbreaks have appeared requiring the necessity of continued control efforts. The prolonged drouth, now in its seventh year, has probably been the main reason for the continuance of the Dixie-Bryce infestation. Under such adverse weather conditions a high level of endemic beetle activity is maintained in all stands, any of which can build up to epidemic proportions. For this reason it has been necessary to survey, by one means or another, all ponderosa pine areas annually in order to be able to recognize and describe the epidemic centers as they occur.

SURVEY METHODS

The Black Hills beetle survey conducted this fall utilized three different survey techniques. The east side of the East Fork of the Sevier, including all of Bryce Canyon National Park above the rim, as well as the Badger-Ahlstrom unit, was covered by a systematic 5% line-plot cruise. All other control areas were covered by two well-trained reconnaissance survey men who traveled through the units noting trees treated in 1956; trees infested in 1955 but not treated in 1956, and all newly attacked trees. Since the number of trees attacked in 1955 and treated in 1956 was known for each unit it was possible to roughly estimate the percentage of coverage given each unit. The estimated number of new attacks was obtained by multiplying the new attacks found by a factor representing the percentage of coverage.

The units of the Dixie National Forest that did not receive any control action this year were covered by a two-man crew from the Division of Forest Insect Research. This crew appraised each unit to determine if sufficient Black Hills beetle population was present to warrent immediate control action. This crew was assisted by the data collected from the aerial survey of the Dixie National Forest conducted in

September 1956.

APPRAISAL SURVEY RESULTS

Mammoth Division

The appraisal survey shows that no problem areas now exist on the Mammoth Division. A few comments concerning some of the units of this division that may be of value are:

The logging operation in the Rock Canyon unit has done a good job of cleaning up this stand of ponderosa pine. It should now be less susceptible to bark beetle attack.

The control program, coupled with the salvage logging appears to have removed a very high percentage of the infested trees in the Asay Bench and Bower Flat area.

The Strawberry-Swains Creek unit contains a few scattered infested trees on the ridges in the upper third of the drainage. There is actually less than one infested tree per section with no characteristics of grouping, therefore no immediate threat to the timber stand is indicated.

The infestation in all other units appears to have been brought under control or at least are quiescent for the present.

East Fork Division

The appraisal work on the East Fork Division shows bark beetle populations on the Pines, Red Canyon area have been brought under control but that active infestations still exist in the Seed Lake area, just below Barney Bluff, and in the West Fork of Hunt Creek. Small salvage sales into these areas would probably be an effective means of curbing these local "buildups".

John's Valley Division

The ground appraisal of the Mud Lakes-Sweetwater area supplemented by aerial observations show that there is approximately 1-1/2 newly attacked trees for every tree attacked last year. Therefore there are in this unit about 3800 infested ponderosa pine trees.

Of the 3800 trees infested with the Black Hills beetle approximately 300 are in the Horse Creek drainage. A majority of the rest of the infested trees are located in the two forks of North Creek and in Center Creek. Most are of merchantable size.

In addition, there are many thousands of Douglas-fir trees killed or being killed by the Douglas-fir beetle Dendroctonus pseudotsugae (Hopk.).

Escalante Division

Ground and aerial surveys failed to locate any infested trees in the Oak Creek-Single tree Creek area, on the east slope of Boulder Mountain, that had not been marked for removal.

OPERATIONAL SURVEY RESULTS

East Fork Division

Daves Hollow-Crawford

The systematic line-plot survey of the east side of the East Fork of the Sevier shows that there are approximately 320 newly infested trees on the National Forest and about 220 infested trees on the National Park above the rim. A high percentage of the infested trees on the forest have been marked for removal by logging. It would appear desirable to treat all infested trees not removed by logging in order to afford maximum protection to the ponderosa pine within the National Park.

Badger-Ahlstrom (includes Johnson Bench)

Approximately 1100 trees were treated in the Badger-Ahlstrom unit in 1956. Indications are that some of the trees were treated too late in the season to obtain maximum beetle mortality. There are now about 600 newly infested trees within this unit. Most of the new "bug trees" are located near the top of the ridges between Blue Fly and Ahlstrom Hollow. There is also a concentration of new "bug trees" high on the slopes in the head of King Hollow. It would be highly desirable to organize for necessary control action to reduce this buildup in the Badger-Ahlstrom unit. Since the majority of the infested trees are high on the ridges it is assumed that the majority of the trees would have to be treated rather than removed by logging.

Badger-Robinson Unit

The results of the reconnaissance survey of the Badger-Robinson Unit shows that there is now approximately 60% fewer infested trees than the 1279 trees treated in 1956. The estimated 500 newly infested trees are scattered throughout the unit, however there may be slightly more infested trees on the ridge tops than in the bottom of the draws.

Below Bryce Rim

A remarkable reduction in the number of infested trees below the Bryce Rim has taken place. It is felt that the excellent treating program carried on this year affected this reduction aided by the logging of the Willis Creek Sale.

There are now less than 400 infested trees below the rim on both the National Forest and the National Park. If possible control action should be undertaken below the rim primarily to insure maximum protection to the National Park values.

Proctor Canyon

Proctor Canyon still contains an active infestation of the Black Hills beetle. However, the number of infested trees is somewhat less than in previous years. If this area could be salvage logged it would do much toward saving this small stand of pine. If it is not loggable it is doubtful if artificial treatment could be justified since it can no longer be considered a serious threat to the pine timber in Blue Fly Creek.

Escalante Division

In the Pine Creek control unit 551 trees were treated in 1956. The results of the survey indicates that there are now between 50-75 infested trees. The newly attacked trees are widely scattered, mostly in the mixed timber near the west rim of Pine Creek.

Johns Valley Division

Pine Lake Unit (Cameron Wash to Sweetwater)

During 1956 a total of 729 infested trees were treated and 459 removed by logging. Apparently, for reasons unknown to the survey crew, a considerable number of the larger infested trees were not treated in 1956. These untreated trees are of course partly responsible for the poor reduction in the number of infested trees on this unit. At the time of the survey it was estimated that around 500 newly attacked trees were present. Plans were underway however to remove many of the trees by logging. A majority of the newly attacked trees found during the survey were located in the heads of the canyons and on or near the ridge tops.

SUMMARY AND DISCUSSION

The Black Hills beetle has been at a high level of activity in southern Utah since 1949 and direct control has been applied since 1950. The infestation involves parts of the Dixie National Forest and Bryce Canyon National Park. Control efforts have reduced the population in localized areas but additional new spots of infestation have developed each year.

All ponderosa pine type of the Dixie National Forest and Bryce Canyon National Park was surveyed by one method or another during the fall months of 1956. The survey showed approximately 6,000 ponderosa pines infested by the Black Hills beetle. A high endemic population is present on the

Mammoth Division but no active epidemic infestation was located. On the East Fork Division many of the areas show a marked reduction.

It would seem desirable to treat those areas on the forest surrounding Bryce Canyon National Park in order to afford maximum protection to the ponderosa pine within the Park. The Badger-Ahlstrom unit contains sufficient bark beetle activity to justify control from an entomological standpoint. Satisfactory reduction was obtained on most of the east fork by control efforts this year. The infested areas on the Johns Valley Division are still at epidemic level. Artificial control and logging has reduced the bark beetle population on the Escalante Division to a low level.

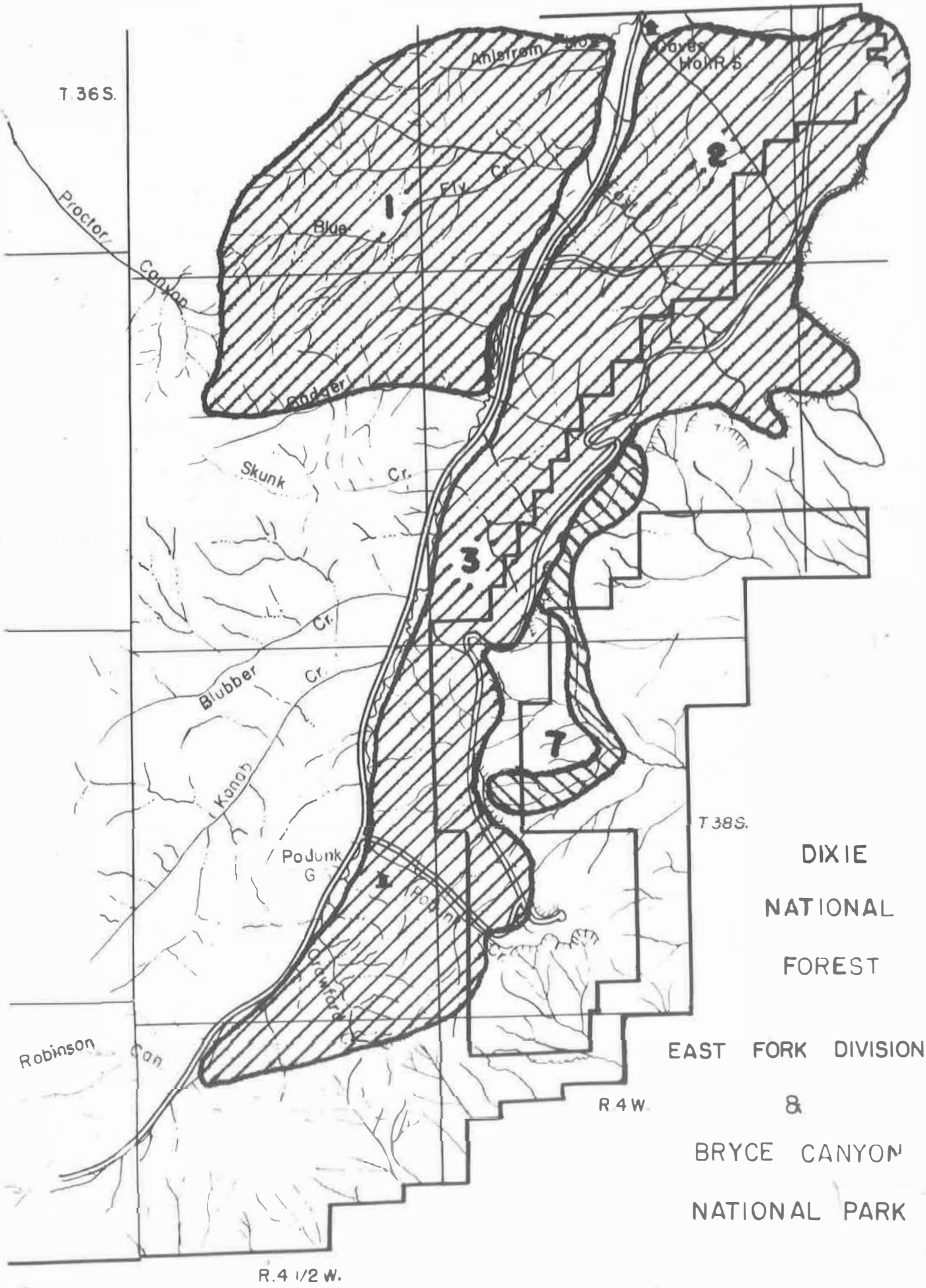
On most of the Dixie National Forest and Bryce Canyon National Park a high endemic population does exist, and therefore continued vigilance is mandatory to insure prompt detection of any developing flareups.

East Fork Division and Bryce Canyon National Park

Project Control Area 1957

Legend

1.	Badger-Ahlstrom	18,100 Acres	600 infested trees
2-3	Daves Hollow-Crawford	22,300 Acres	320 infested trees
	Bryce Canyon above Rim	10,000 Acres	220 infested trees
7.	National Park and National Forest lands below Rim	12,000 Acres	Less than 400 infested trees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Proctor
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1
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DIXIE
NATIONAL
FOREST
EAST FORK DIVISION
&
BRYCE CANYON
NATIONAL PARK